

ECON 222A

Macroeconomic Theory I

Exchange Rates, Business Cycles,
and Macroeconomic Policy
in the Open Economy
Lecture 20

Today's Lecture

- PS4 is due on April 1st .
- Class on April 8th only exercises.
- Final is on April 16th.

Today's Lecture

- Macro Policy in a Small Open Economy with Fixed Exchange Rates
- Which Exchange Rate Regime?

Fixed Exchange Rates

- Situation where e_{nom} is fixed relative to some standard
 - gold, US \$, etc.
 - e_{nom} is not adjusting to *Supply* and *Demand* for the currency, but it's set officially
 - open market gives: fundamental value of the exchange rate
 - we contrast the fixed e_{nom} to this

Questions

- How does the use of a fixed-exchange rate system affect an economy and macro policy?
- Which regime is better: flexible or fixed?

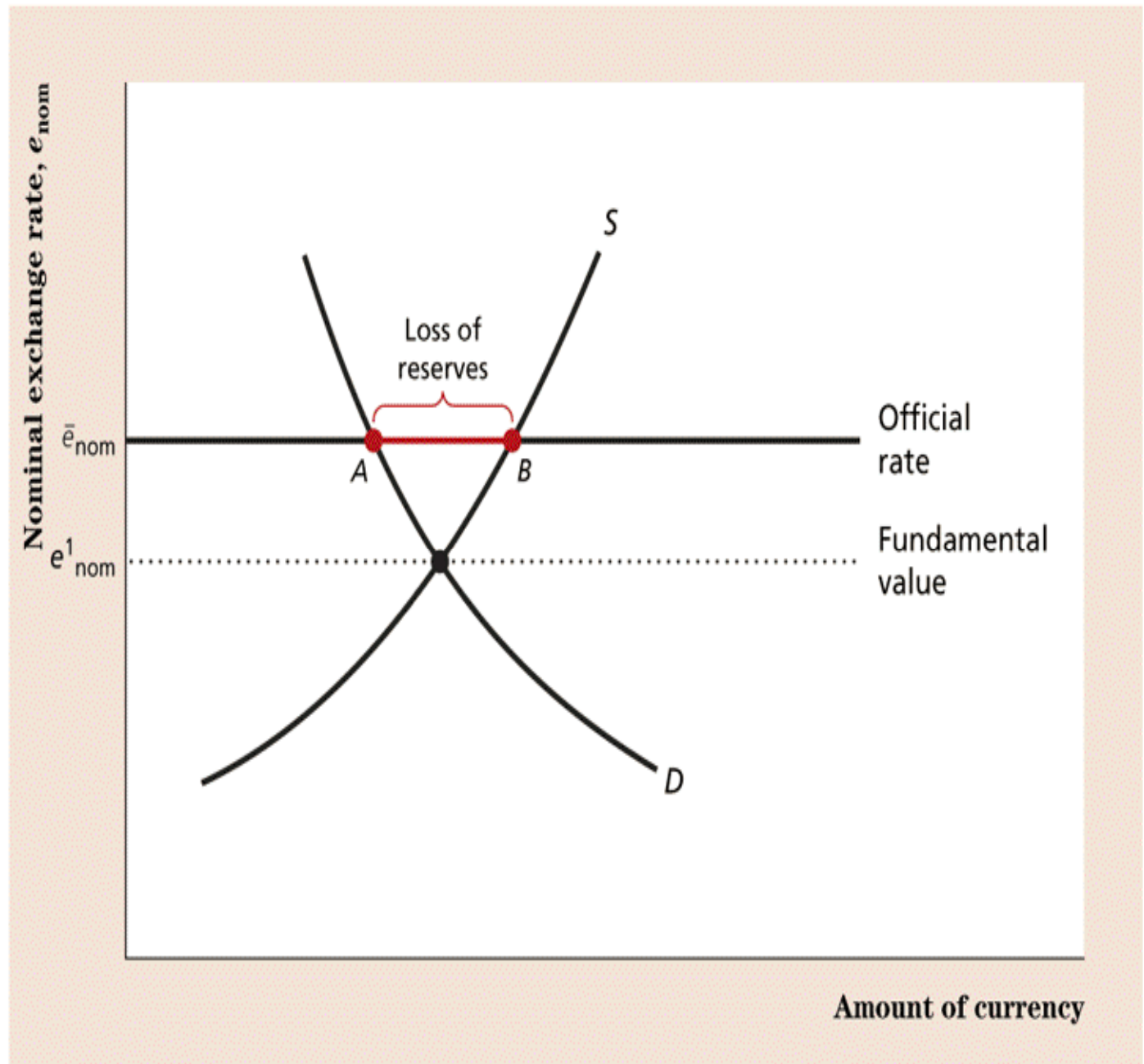
Preliminaries

- Fundamental value of the exchange rate
 - value that would be determined in the foreign exchange markets
- Overvalued exchange rate
 - when the fixed exchange rate is above the fundamental value
- How to deal with an overvalued exchange rate?
 - make value equal to the fundamental value (devaluation)
 - restrict inflows/outflow of capital and imports
 - government can use official reserve assets to buy back its own currency

FIGURE 10.10

**AN OVERVALUED
EXCHANGE RATE**

The figure shows a situation in which the officially fixed nominal exchange rate, \bar{e}_{nom} , is higher than the fundamental value of the exchange rate, e^1_{nom} , as determined by supply and demand in the foreign exchange market. In this situation, the exchange rate is said to be overvalued. The country's central bank can maintain the exchange rate at the official rate by using its reserves to purchase its own currency in the foreign exchange market, in the amount of AB in each period. This loss of reserves also is referred to as the country's balance of payments deficit.



Government

- Can use official reserve assets to deal with currencies and keep e_{nom}
 - gold standard: A-B amount of gold the government would spend to buy back currency to maintain e_{nom}
 - such spending reduces a country's official reserves
 - Balance of payments deficit

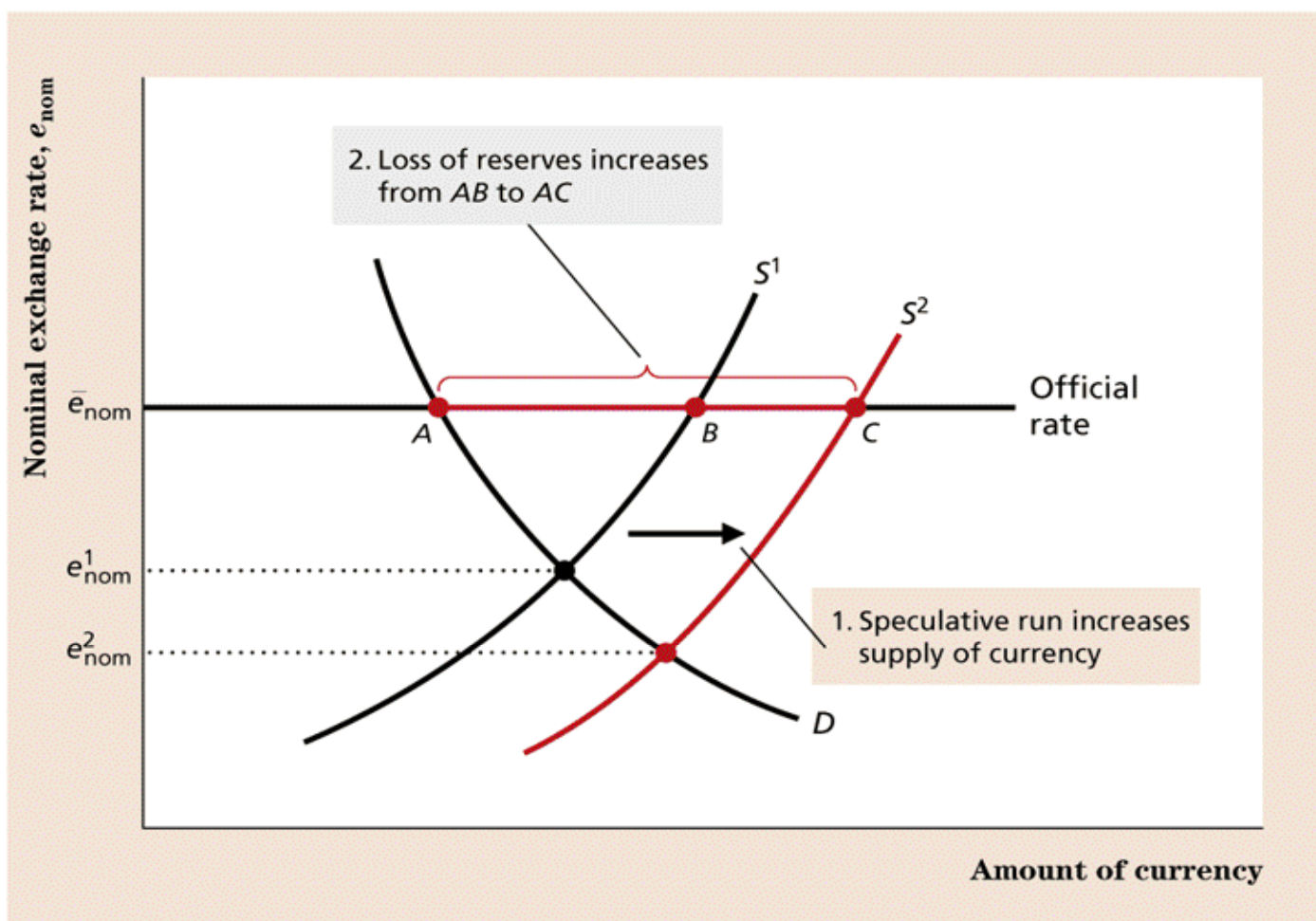
Can this happen forever?

- No: there is a finite amount of gold and reserves
- Speculative runs can stop it too
 - when investors believe an overvalued currency will be devalued
 - they sell off the currency
 - supply of currency shifts
 - deficit widens as e_{nom} is maintained

FIGURE 10.11

A SPECULATIVE RUN ON AN OVERVALUED CURRENCY

Initially, the supply curve of the domestic currency is S^1 and, to maintain the fixed exchange rate, the central bank must use amount AB of its reserves each period to purchase its own currency in the foreign exchange market. A speculative run occurs when holders of domestic assets begin to fear a devaluation, which would reduce the values of their assets (measured in terms of foreign currency). Panicky sales of domestic-currency assets lead to more domestic currency being supplied to the foreign exchange market, which shifts the supply curve of the domestic currency to the right, from S^1 to S^2 . The central bank must now purchase its currency and lose reserves in the amount AC . This more rapid loss of reserves may force the central bank to stop supporting the overvalued currency and to devalue it, confirming the market's expectations.



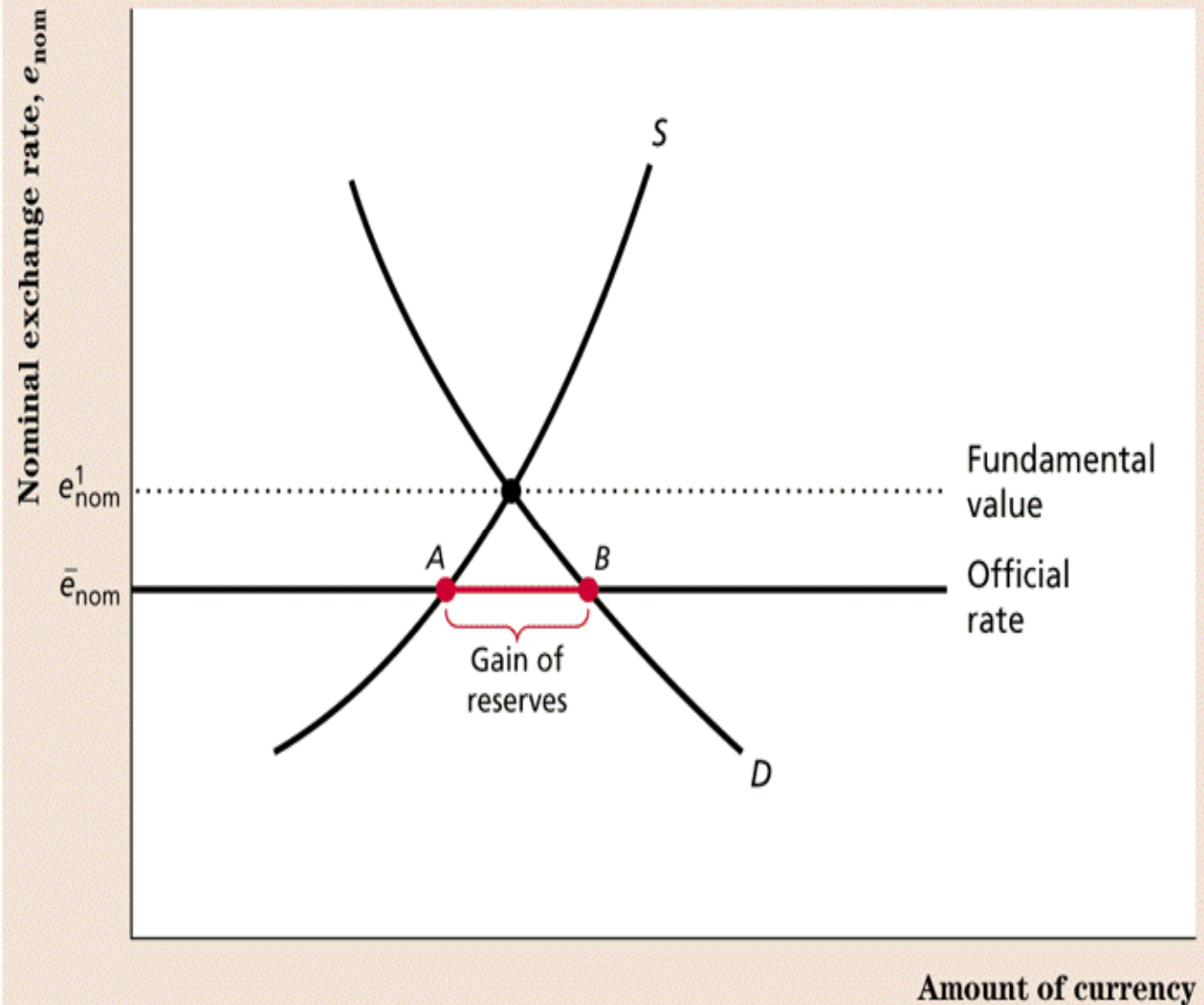
Undervaluation is Possible Too

- Opposite picture where the exchange rate is held below the fundamental level
 - everything is the same, just the opposite

FIGURE 10.13

AN UNDERVALUED EXCHANGE RATE

The exchange rate is undervalued when the officially determined nominal exchange rate, \bar{e}_{nom} , is less than the fundamental value of the exchange rate as determined by supply and demand in the foreign exchange market, e_{nom}^1 . To maintain the exchange rate at its official level, the central bank must supply its own currency to the foreign exchange market in the amount AB each period, thereby accumulating foreign reserves.



Monetary Policy and Fixed Exchange Rates

- Let's apply them in *IS-LM* framework:
 - say M^s rises, the *LM* shifts out
 - downward pressure on e_{nom}
 - the job of the Central Bank is to maintain e_{nom}
 - so it will respond by reducing M^s
 - lower M^s by the same amount it was raised
 - Monetary policy useless for Short Run policy

FIGURE 10.14

MONETARY POLICY IN A SMALL OPEN ECONOMY WITH FIXED EXCHANGE RATES

The economy is in general equilibrium at point E . The exchange rate is at its fundamental value. A monetary expansion shifts the LM curve down and to the right from LM^1 to LM^2 . Such a policy results in an overvalued currency. To fix the value of the currency, the monetary expansion must be reversed. A monetary contraction shifts the LM curve up and to the left from LM^1 to LM^3 . Such a policy results in an undervalued currency. To fix the value of the currency, the monetary contraction must again be reversed. Under fixed exchange rates a central bank cannot use monetary policy to pursue macroeconomic stabilization goals.

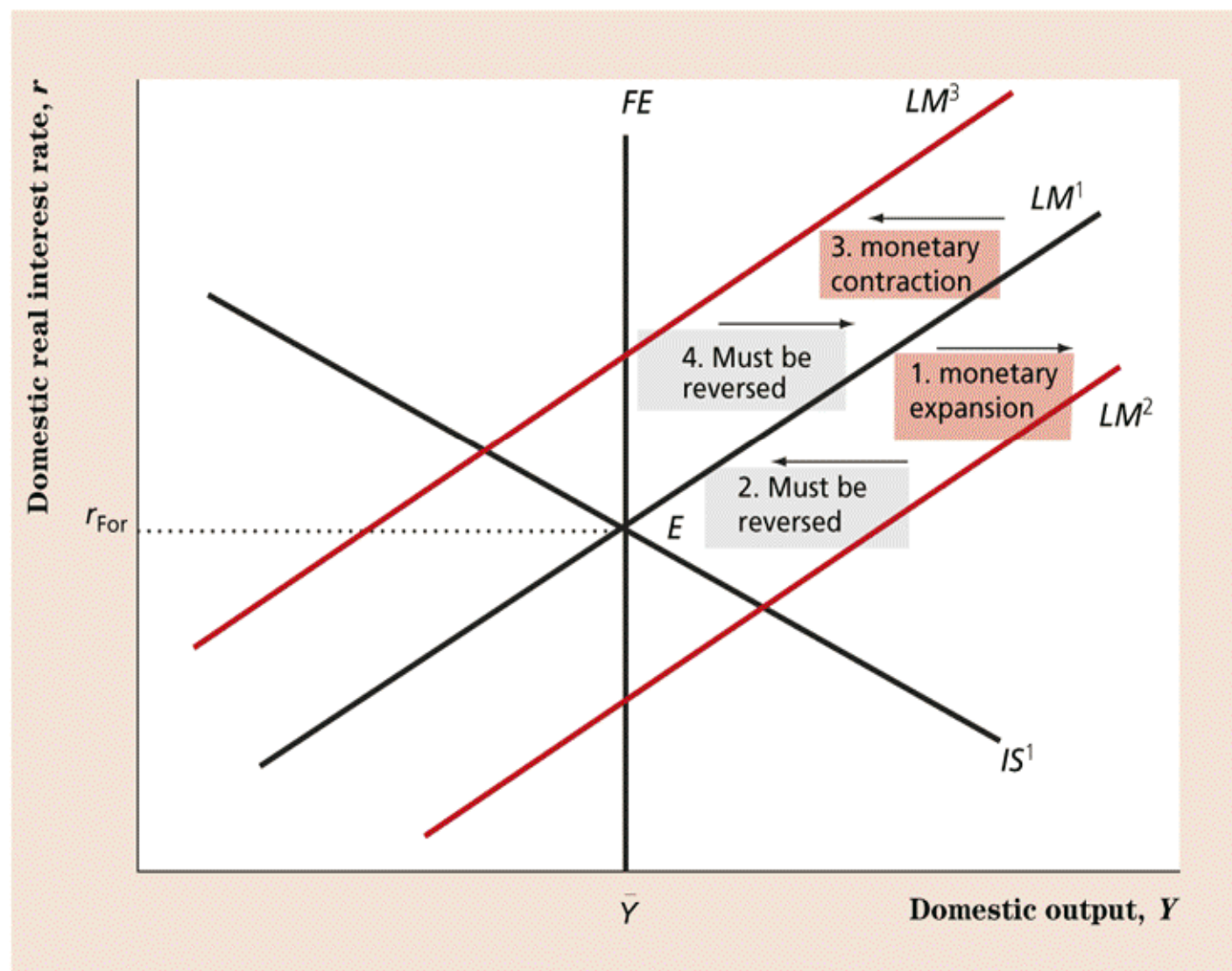
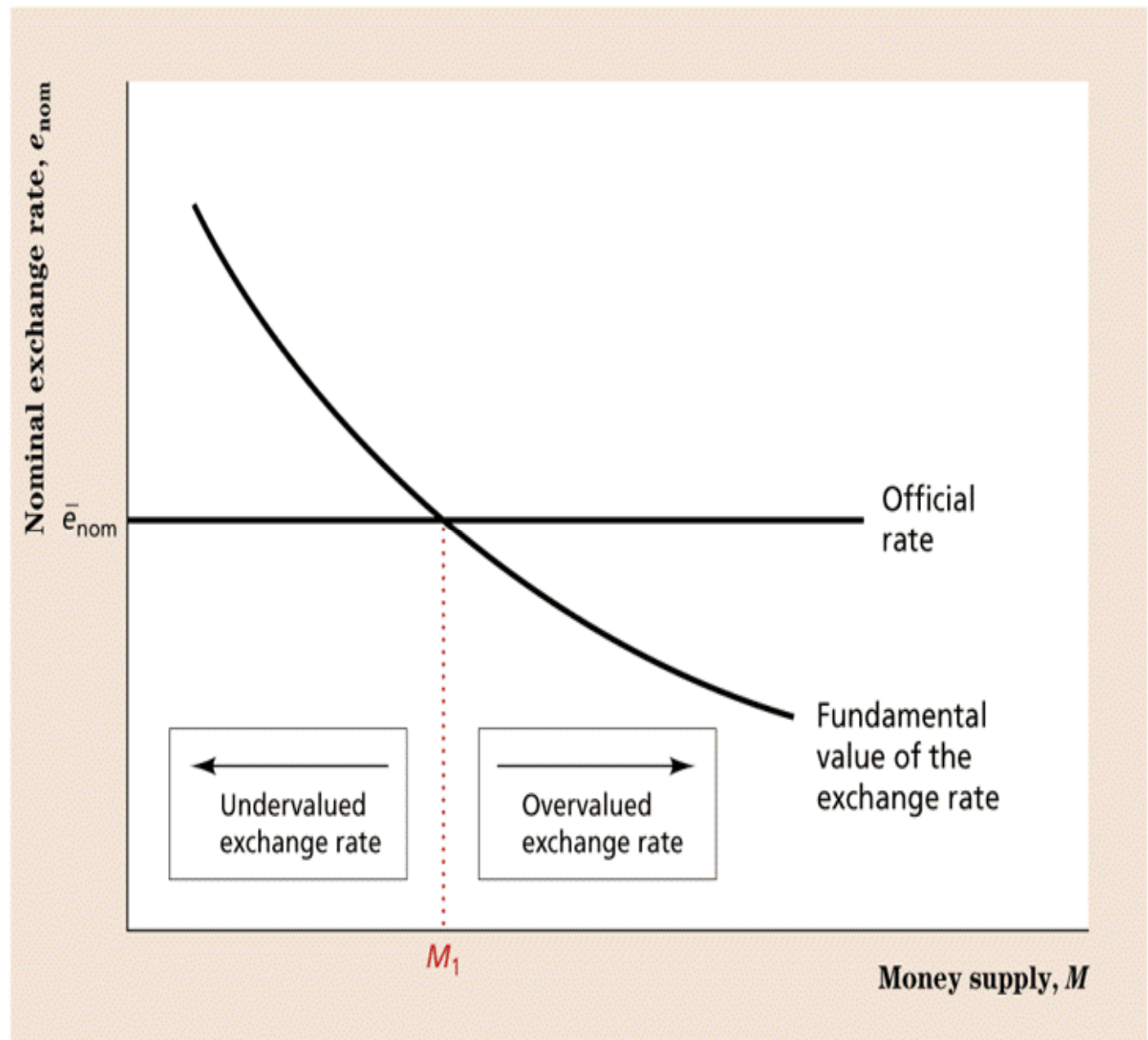


FIGURE 10.15

DETERMINATION OF THE MONEY SUPPLY UNDER FIXED EXCHANGE RATES

The downward-sloping fundamental value curve shows that a higher domestic money supply causes a lower fundamental value of the exchange rate. The horizontal line shows the officially fixed nominal exchange rate. Only when the country's money supply equals M_1 does the fundamental value of the exchange rate equal the official rate. If the central bank increased the money supply above M_1 , the exchange rate would become overvalued. A money supply below M_1 would result in an undervalued currency.



Fiscal Policy and Fixed Exchange Rates

- Now consider a rise in G
 - G rises, IS shifts out
 - r rises, puts upward pressure on e_{nom}
 - The central bank responds: it raises M^s and the LM shifts out
- M^s rises until r falls to r_{For} , e_{nom} falls
 - There is a big Short Run effect on Y here

Long Run: Unraveling Follows

- Firms are 'over-heating'
 - Price level P rises, domestically
 - Recall: $e = (e_{nom} P) / P_{For}$
- so e rises, NX falls
 - Adjustment back to the original position
- IS shifts in as NX falls (dollar for dollar with original G rise)
- LM shifts in to maintain e_{nom} (although e changes because of P changing)

The Usual Disagreement in Macro

- Keynesian
 - G can have big Short Run effect if P adjustment is sluggish
- Classical
 - G has no impact, the price increase is instantaneous

How to Choose an Exchange Rate System?

- Two benefits of the fixed system:
 - stable exchange rates reduce uncertainty and make goods and asset trade easier
 - disciplines central banks from running expansionary monetary policy constantly
- One downside is the inability of a Country to use its monetary policy to deal with recessions

How to Choose an Exchange Rate System?

- Three problems with the fixed system:
 - Can't use monetary policy to offset recessions
 - Lose monetary policy independence
 - Vulnerable to speculative attacks
- Not clear which is better, depends on circumstances

Open-Economy Trilemma

- In selecting an exchange rate system a Country can choose only two of the three features:
 1. a fixed exchange rate to promote trade,
 2. free international movement of capital,
 3. autonomy for domestic monetary policy.

Alternative Regimes

- Currency Unions (e.g. EURO)
 - when a group of countries share one currency
- Pro's:
 - Promotes trade, since, with a single currency, trading cost is even less
 - Using the common currency, speculative attacks can be avoided
- Con: must share monetary policy (asymmetric shocks are problematic to deal with)